

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2004-NE-07-AD; Amendment 39-13579; AD 2004-08-10]

RIN 2120-AA64

Airworthiness Directives; Engine Components Incorporated (ECi) Reciprocating Engine Cylinders

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for Teledyne Continental Motors (TCM) models 520 and 550 series engines with certain ECi cylinders installed. This AD requires replacing certain serial-numbered (SN) cylinders supplied by ECi before further flight. This AD results from reports of 34 failures of cylinder heads marketed by ECi. We are issuing this AD to prevent loss of engine power due to cracks in the cylinder head and possible engine failure caused by separation of a cylinder head.

DATES: This AD becomes effective May 5, 2004.

We must receive any comments on this AD by June 21, 2004.

ADDRESSES: Use one of the following addresses to submit comments on this AD:

- By mail: The Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2004-NE-07-AD, 12 New England Executive Park, Burlington, MA 01803-5299.
- By fax: (781) 238-7055.
- By e-mail: 9-ane-adcomment@faa.gov. You can get the service information referenced in this AD from Engine Components, Inc., 9503 Middlex, San Antonio, TX 78217; Phone (210) 820-8100; fax (210) 820-3103.

You may examine the AD docket at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA.

FOR FURTHER INFORMATION CONTACT: Fred Stellar, Branch Manager, Special Certification Office, FAA, Rotorcraft Directorate, 2601 Meacham Blvd., Fort Worth, TX 76193; telephone (817) 222-5199; fax (817) 222-5785.

SUPPLEMENTARY INFORMATION: On February 1, 2003, we received a report of an ECI cylinder head, part number (P/N) AEC65385, that separated from the barrel at the head-to-barrel junction. Since that report, we have received reports of 27 additional ECI cylinder heads that had the same condition. We also received reports of six cylinder heads that had a crack between the 9th and 10th head fin from the head-to-barrel junction. All of the reported separations and cracks were located between the ninth and tenth head fin from the head-to-barrel junction. All of the cracks started on the exhaust side of the head. The ECI cylinder head, P/N AEC65385, is part of ECI cylinder, P/N AEC631397. RAM Series III, IV, and VII reciprocating engines are the primary users of these cylinders. The RAM series engines are TCM TSIO-520-NB, -VB, and -WB engines that are modified by supplemental type certificate (STC) SE4327SW, STC SE09104SC, or STC SE09261SC for operation at 325 HP or greater. In addition, we approved the engine cylinders, ECI P/N AEC631397 for use on TCM models 520 and 550 series reciprocating engines under a Parts Manufacturer Approval (PMA). The Airmotive Engine Division of ECI holds the PMA. ECI markets the parts as ECI parts.

Results of Manufacturer's Investigation

An investigation by ECI revealed that cylinder heads, P/N AEC65385, manufactured between September 1, 2002, and May 12, 2003, SNs 1044 through 7708, are susceptible to an over-hardened condition, which reduces the fatigue strength of the cylinder. It also increases the chance that the cylinder will crack.

Relevant Service Information

We reviewed and approved the technical contents of RAM Aircraft Mandatory Service Bulletin (MSB) MSB2003-02, dated August 8, 2003, and ECI MSB S.I. No. 04-1, Revision 1, dated March 11, 2004, that describe procedures for identifying, inspecting, and replacing affected cylinders.

Differences Between This AD and the Service Information

RAM Aircraft MSB MSB2003-02, dated August 8, 2003, requires replacing only the No. 6 cylinder, ECI P/N AEC631397, on RAM Series III, IV, and VII engines. ECI MSB S.I. No. 04-1, Revision 1, dated March 11, 2004, requires identifying the suspect cylinders on TCM models 520 and 550 engines and inspecting them for cracks. This AD requires replacing all cylinders, ECI P/N AEC631397, on all RAM Series III, IV, and VII engines; and all TCM model 520, and 550 series engines.

FAA's Determination and Requirements of This AD

The unsafe condition described previously is likely to exist or develop on other RAM Series III, IV, and VII engines; and TCM model 520, and 550 series engines of the same type design. We are issuing this AD to prevent loss of engine power due to cracks in the cylinder head and possible engine failure caused by separation of a cylinder head. This AD requires:

Performing a check to identify cylinders, ECI P/N AEC631397, S/Ns 1044 through 7708, within 50 hours time-in-service after the effective date of this AD. and

If a cylinder has an affected P/N and SN, replacing the cylinder before further flight if it was not inspected at ECI.

FAA's Determination of the Effective Date

Since an unsafe condition exists that requires the immediate adoption of this AD, we have found that notice and opportunity for public comment before issuing this AD are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

Comments Invited

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and an opportunity for public comment; however, we invite you to submit any written relevant data, views, or arguments regarding this AD. Send your comments to an address listed under ADDRESSES. Include "AD Docket No. 2004-NE-07-AD" in the subject line of your comments. If you want us to acknowledge receipt of your mailed comments, send us a self-addressed, stamped postcard with the docket number written on it; we will date-stamp your postcard and mail it back to you. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify it. If a person contacts us verbally, and that contact relates to a substantive part of this AD, we will summarize the contact and place the summary in the docket. We will consider all comments received by the closing date and may amend the AD in light of those comments.

We are reviewing the writing style we currently use in regulatory documents. We are interested in your comments on whether the style of this document is clear, and your suggestions to improve the clarity of our communications with you. You can get more information about plain language at <http://www.faa.gov/language> and <http://www.plainlanguage.gov>.

Examining the AD Docket

You may examine the AD Docket (including any comments and service information), by appointment, between 8:00 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays. See ADDRESSES for the location.

Regulatory Findings

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the regulation:

1. Is not a "significant regulatory action" under Executive Order 12866;
2. Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and
3. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary by sending a request to us at the address listed under ADDRESSES. Include "AD Docket No. 2004-NE-07-AD" in your request.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39–AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE



Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

We post ADs on the internet at "www.faa.gov"

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2004-08-10 Engine Components Incorporated (ECi): Amendment 39-13579. Docket No. 2004-NE-07-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective May 5, 2004.

Affected ADs

(b) None.

Applicability

(c) This AD applies to Teledyne Continental Motors (TCM) TSIO-520-NB, -VB, and -WB engines that are modified by supplemental type certificate (STC) SE4327SW, STC SE09104SC, or STC SE09261SC for operation at 325 HP or greater, (the so-called RAM TSIO-520-NB, -VB, or -WB Series III, IV, and VII reciprocating engines; and Teledyne Continental Motors (TCM) model 520 and 550 series reciprocating engines with certain ECi reciprocating engine cylinders, part number (P/N) AEC631397, installed. These engines are installed on, but not limited to the airplanes listed in the following Table 1:

TABLE 1.—LIST OF AIRPLANES THAT USE THE AFFECTED ENGINES	
Airplane manufacturer and model	Engine model
AERFER/AERMECCHI AM, 3	GTSIO-520-C
AERO COMMANDER:	
200D	IO-520-A
500A COLEMILL CONVERSION	IO-520-E
685	GTSIO-520-K
AISA: F20, PEGASO	IO-520-K
AMBROSIN MF-151	IO-520-F
AVIONES PIHAO	IO-520-D
BEAGLE (U.K.): B206S	GTSIO-520-C
BEECHCRAFT BARON:	
C55	IO-520-CB, -C
D55	IO-520-CB, -C
E55	IO-520-CB, -C
58	IO-520-CB

58P	TSIO-520-LB
58P	TSIO-520-L
58P	TSIO-520-WB
58TC	TSIO-520-LB
58TC	TSIO-520-L
58TC	TSIO-520-WB
BEECHCRAFT BONANZA:	
A36	IO-550-B
E33A	IO-520-BA
E33A	IO-520-BB
E33B	IO-520-B
F33	IO-520-BB
F33A	IO-520-B
F33A	IO-520-BA
F33A	IO-520-BB
S35	IO-520-B
ST35	TSIO-520-D
V35	IO-520-BB
V35A	IO-520-B
V35A-TC	TSIO-520-D
V35B	IO-520-B
V35B	IO-520-BA
V35B	IO-520-BB
A36	IO-520-B
A36	IO-520-BA
A36	IO-520-BB
A36-TC	TSIO-520-UB
BEECHCRAFT DEBONAIR: C33A	IO-520-B
VIKING 300	IO-520-A
	IO-520-D
	IO-520-K
BONNAIRE 185	IO-520-D
BONNAIRE 188 CONVERSION	IO-520-D
BURNS BA42	IO-520-D
CESSNA:	
SUPER SKYLANE A, B, C, D, E	IO-520-A
TURBO SUPER SKYLANE	TSIO-520-C
SKYWAGON A185 E, F	IO-520-D
SKYWAGON A185FII	IO-520-D
AG SPRAYER 188-300	IO-520-D
A188-230	IO-520-D
AG TRUCK (A 188B) -300	IO-520-D
AG HUSKEY (A 188C) -310	TSIO-520-T
AG WAGON (A 188B)	IO-520-D
SUPER SKYWAGON U206, A	IO-520-A
U206B, C, D, E, F	IO-520-F
TURBO SKYWAGON TU206 A	IO-520-C
TU206B, C, D, E, F	TSIO-520-C

STATIONAIR U206	IO-520-F
TU206	TIOS-520-C
U206FII-300	IO-520-F
U206G-300	IO-520-F
U206GII-300	IO-520-L
TU206G-310	TSIO-520-M
SUPER SKYLANE P206A	IO-520-A
P206B, C, D, E	IO-520-A
TURBO P 206 A, B, C, D, E	TSIO-520-C
SKYWAGON 207	IO-520-F
TURBO 207	TSIO-520-G
STATIONAIR 207A, 207AII	IO-520-F
STATIONAIR 8, 811	IO-520-F
T-STATIONAIR 811	TSIO-520-M
210 CENTURION D, E, F, G, H.	IO-520-A
210 CENTURION J	IO-520-J
210 CENTURION K, L, M, N, R	IO-520-L
210 CENTURION TURBO	TSIO-520-C
210 CENTURION TURBO	TSIO-520-H
210 CENTURION TURBO K, L	TSIO-520-H
TURBO 210 J, K, L	TSIO-520-H
TURBO 210 MII, NII	TSIO-520-R
TURBO 210R	TSIO-520-R
PRESSURIZED CENTURION P210N	TSIO-520-P
PRESSURIZED CENTURION P210NII	TSIO-520-AF
PRESSURIZED CENTURION P210R	TSIO-520-CE
T303 CRUSADER	TSIO-520-AE
T303 CRUSADER	LTSIO-520-AE
310R	IO-520-MB
310R	IO-520-M
TURBO 310 P, Q	TSIO-520-B
TURBO 310 R	TSIO-520-BB
TURBO 310 R	TSIO-520-B
EXECUTIVE SKYNIGHT D, E, F	TSIO-520-B
335	TSIO-520-EB
340	TSIO-520-K
340A	TSIO-520-NB, -N
401 A, 401 B	TSIO-520-E
402 A, 402 B	TSIO-520-E
402C	TSIO-520-VB
404 TITAN	GTSIO-520-M
411, 411A	GTSIO-520-C
414	TSIO-520-J
414, 414 A	TSIO-520-NB, -N
421A	GTSIO-520-D
421B	GTSIO-520-H
421C	GTSIO-520-L
421C	GTSIO-520-N
JANOX JAVILON	IO-520-B

NAVION:	
RANGEMASTER MODEL H	IO-520-B
RANGEMASTER MODEL H	IO-520-BA
PIPER: MALIBU	
TSIO-520-BE	
PRINAIR:	
DE HAVILLAND HERON	IO-520-E
WINDECKER EAGLE	IO-520-C

Unsafe Condition

(d) This AD results from reports of 34 failures of ECI cylinder head. We are issuing this AD to prevent loss of engine power due to cracks in the cylinder head and possible engine failure caused by separation of a cylinder head.

Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

Identifying Suspect Cylinders

(f) Within 50 hours time-in-service (TIS) after the effective date of this AD, identify, and if necessary replace cylinders, ECI P/N AEC631397 as follows:

(1) Identify the cylinder serial number (SN) as follows:

(i) Determine the SN of the cylinder by looking in the engine records or by inspecting the cylinder for a SN on the intake port boss (see Figure 1) or on the flat area next to the head to barrel junction (see Figure 2). Disregard any dash numbers that might follow the four digit SN.

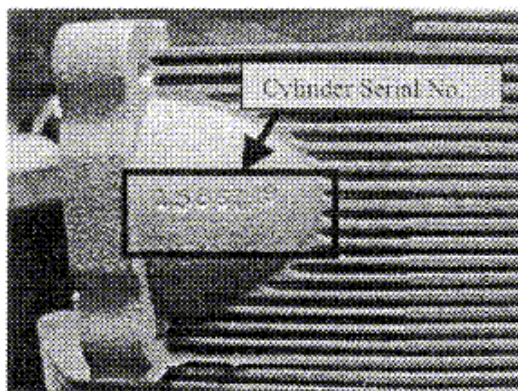


Figure 1.

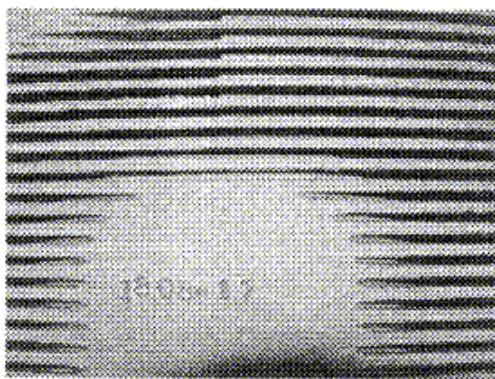


Figure 2.

- (ii) If the SN is 1043 or lower, or if it is 7709 or higher, no further action is required.
- (2) If the cylinder SN is 1044 through 7708, do the following:
 - (i) Remove the rocker box cover from the cylinder.
 - (ii) Look at the left-front cylinder casting.
 - (iii) If the casting has AEC65385, and an "O" under the ECi logo, the cylinder is P/N AEC631397. See Figure 3.

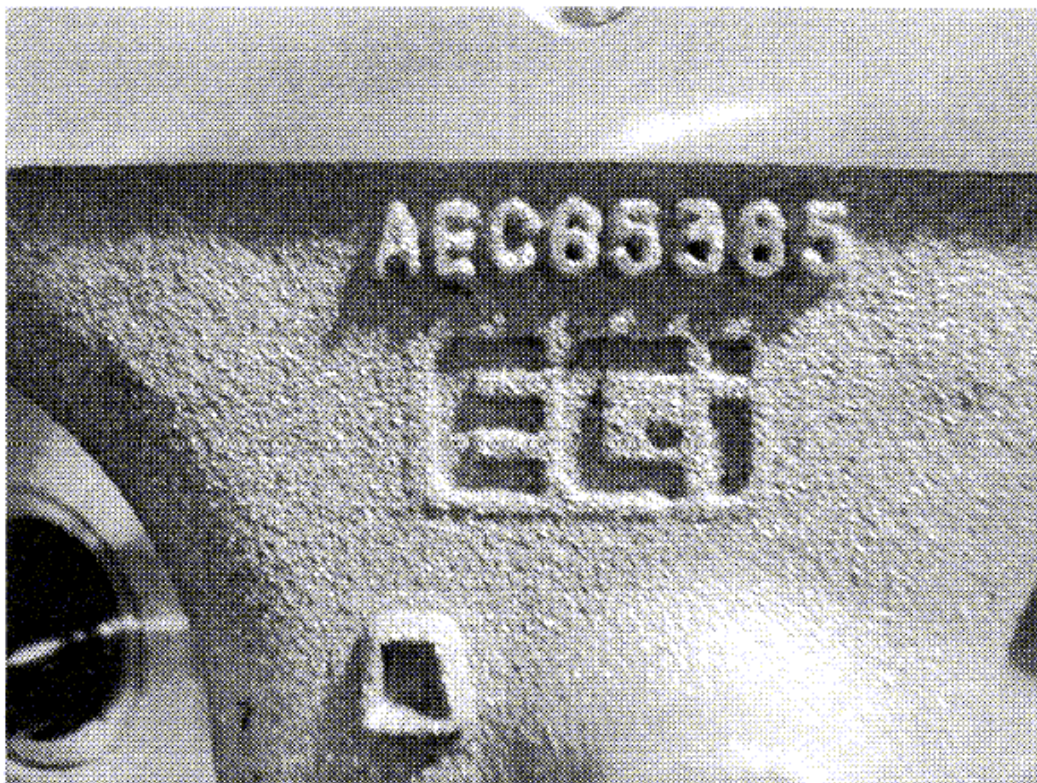


Figure 3.

- (iv) If the cylinder is not ECI P/N AEC631397, no further action is required.
- (3) If the cylinder is ECI P/N AEC631397, do the following:
 - (i) Look at the flange of the rocker box.
 - (ii) If there is a letter "A," "B," or "X" stamped on the flange of the rocker box, no further action is required. See Figure 4.

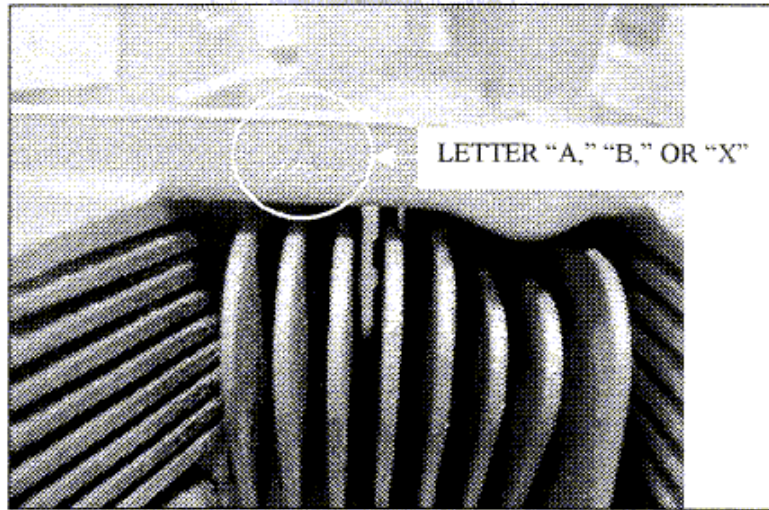


Figure 4.

- (iii) If there is no letter "A," "B," or "X" stamped on the flange of the rocker box, replace the cylinder before further flight.

Alternative Methods of Compliance

- (g) The Manager, Special Certification Office, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR 39.19.

Material Incorporated by Reference

- (h) None.

Related Information

- (i) ECI Mandatory Service Bulletin S.I. No. 04-1, revision 1, dated March 11, 2004, also pertains to this subject of this AD.

Issued in Burlington, Massachusetts, on April 9, 2004.

Francis A. Favara,
Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.
[FR Doc. 04-8877 Filed 4-19-04; 8:45 am]
BILLING CODE 4910-13-P